ASMMC.9CP1DV1C1 PATENT

INFORMATION DISCLOSURE STATEMENT

Applicant

Arthur Sherman

App. No.

Unknown

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Herewith

For

SEQUENTIAL CHEMICAL VAPOR DEPOSITION

Examiner

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Group Art Unit

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Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Enclosed is form PTO-1449 listing two hundred forty-three (243) references that were previously disclosed to or cited by the Patent and Trademark Office in the prosecution of U.S. patent application No. 09/866,156, filed May 24, 2001, which is the parent of this application, and is relied upon for an earlier filing date under 35 U.S.C. § 120. Copies of the references are not submitted pursuant to 37 C.F.R. § 1.98(d). This Information Disclosure Statement is being filed with an RCE or within three months of the filing date of this application and no fee is required in accordance with 37 C.F.R. § 1.97(b)(1), (b)(2), or (b)(4).

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: October 10, 2003

By: Andrew N. M.

Andrew N. Merickel Registration No. 53,317 Attorney of Record

Customer No. 20,995 (415) 954-4114

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ATTY.	DOCKET NO.
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GROUP Unknown

				U.S. PATENT DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER DATE NAME		CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE	
	1.	4,058,430	11/15/77	Suntola et al.	156	611	11/25/75
	2.	4,282,267	08/04/81	Kûyel			
•	3.	4,389,973	06/28/83	Suntola et al.	118	725	12/11/81
	4.	4,747,367	05/31/88	Posa			
	5.	4,761,269	08/02/88	Conger et al.			LLO M
	6.	4,767,494	08/30/88	Kobayashi	156	606	09/19/86
	7.	4,845,049	07/04/89	Sunakawa	437	81	03/28/88
	8.	4,851,095	07/89	Scobey et al.			
	₿.	4,859,627	08/22/89	Sunakawa	437	81	07/01/88
	10.	4,876,218	10/24/89	Pessa et al.	437	107	09/26/88
	11.	4,935,661	06/90	Heinecke et al.			
	12.	4,935,661-A	06/1990	Heinecke et al.			
	13.	4,993,357	02/19/91	Scholz	118	715	12/21/89
	14.	5,060,595	10/29/91	Ziv et al.	118	722	
	15.	5,071,670	12/10/91	Kelly	427	38	
	16.	5,130,269	07/14/92	Kitahara et al.	437	111	04/25/89
	17.	5,166,092	11/24/92	Mochizuki et al.	437	105	10/30/90
	18.	5,225,366	07/06/93	Yoder	437	108	07/22/90
	19.	5,256,244	10/26/93	Ackerman	156	613	02/10/92
	20.	5,270,247	12/14/93	Sakuma et al.	437	133	07/08/92
	21.	5,278,435	01/11/94	Van Hove			
	22.	5,281,274	01/25/94	Yoder			
	23.	5,291,066	03/01/94	Neugebauer			
	24.	5,294,286	03/15/94	Neugebauer			
	25.	5,300,186	04/05/94	Kitahara			
	26.	5,306,666	04/26/94	Izumi	437	192	07/21/93
	27.	5,321,713	06/14/94	Khan			

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				U.S. PATENT DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE (IF APPROPRIATE)
	28.	5,330,610	07/19/94	Eres			
	29.	5,356,673	10/94	Schmitt et al.			
	30.	5,374,570	12/20/94	Nasu			
	31.	5,395,791	03/07/95	Cheng			
	32.	5,443,033	08/22/95	Nishizawa			H-816-8
	33.	5,443,647	08/22/95	Aucoin et al.			
	34.	5,458,084	10/17/95	Thorne			
	35.	5,469,806	11/28/95	Mochizuki			
	36.	5,483,919	01/16/96	Kitahara			· · · · · ·
	37.	5,484,664	01/16/96	Yokoyama			
	38.	5,496,582	03/05/96	Mizutani			
	39.	5,618,395	04/08/97	Gartner		··	
	40.	5,641,984	06/24/97	Aftergut			
	41.	5,693,139	12/02/97	Nishizawa et al.	117	89 .	06/15/93
	42.	5,707,880	01/13/98	Aftergut			
	43.	5,711,811	01/27/98	Suntola			
	44.	5,730,802	03/24/98	Ishizumi			
-	45.	5,769,950	06/23/98	Takasu et al.	1		
	46.	5,855,680	01/05/99	Soininen	1		
-	47.	5,916,365	06/99	Sherman			
	48.	5,916,365	06/1999	Sherman	i Fa		
	49.	6,200,893	03/13/01	Sneh			
	50.	6,203,613	03/20/01	Gates et al.	117	104	10/19/99
	51.	6,270,572	08/07/01	Kim et al.	117	93	08/09/99
	52.	6,342,277	01/2002	Sherman			
	53.	US 2001/0028922	10/2001	Sandhu, Gurtej S.	427	255.27	

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				FOREIGN PATENT DOCUMENTS				
EXAMINER	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION		
INITIAL							YES	ΝΟ
	54.	WO 00/63957	26.10.00	PCT	H01L21	205		
	55.	0 442 490 A1	21.08.91	Europe				
	56.	0 526 779 A1	10.02.93	Europe				
	57.	1 167 567 A1	02.01.02	Europe				

EXAMINE R INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)							
	58.	Aarik, J. et al., "Effect of Growth Conditions on Formation of TiO ₂ -II Thin Films in Atomic Layer Deposition Process," Appl. Surf. Sci., Vol. 112, p. 259, (1997).						
	59.	Abeles et al., "Amorphous Semiconductor Superlattices," Physical Review Letters, Vol. 51, No. 21, pp. 2003-2006, (1983).						
	60.	Ahonen, M. et al., "A Study of ZnTe films Grown on Glass Substrates Using an Atomic Layer Evaporation Method," Thin Solid Films, Vol. 65, p. 301, (1980).						
	61.	Ait-Lhouss, M. et al., "Atomic Layer Epitaxy of GaAs from Tertiarybutylarsine and Triethylgallium," J. Appl. Phys., Vol. 78, p. 5834, (1995).						
	62.	Akazawa, H., "Characterization of Self-limiting SiH ₂ Cl ₂ Chemisorption and Photon-stimulated Desorption as Elementary Steps for Atomic-layer Epitaxy," Phys. Rev. Vol. B 54, p. 10917, (1996).						
	63.	Ares, R. et al., "Growth Mechanisms in Atomic Layer Epitaxy of GaAs," J. Appl. Phys., Vol. 83, p. 3390, (1998).						
	64.	Asikainen, T. et al., "Growth of In ₂ O ₃ Thin Films by Atomic Layer Epitaxy," J. Electrochem. Soc., Vol. 141, p. 3210, (1994).						
	65.	Asikainen, T. et al., "Growth of Indium-Tin-Oxide Thin Films by Atomic Layer Epitaxy," J. Electrochem. Soc., Vol. 142, p. 3538, (1995).						
	66.	Asikainen, T. et al., "AFM and STM Studies in In ₂ O ₃ and ITO Thin Films Deposited by Atomic Layer Epitaxy," Appl. Sur. Sci., Vol. 99, p. 91, (1996).						
	67.	Bedair, S.M. et al., "Atomic Layer Epitaxy of III-V Binary Compounds," Appl. Phys. Lett., Vol. 47, p. 51, (1985).						
	68.	Bedair, S.M., "Atomic Layer Epitaxy Deposition Process," J. Vac. Sci. Technol. B. Vol. 12, No. 1, p. 179, (1994).						
	69.	Elers, K-E. et al., "NbCl5 as a Precursor in Atomic Layer Epitaxy," Appl. Surf. Sci., 82/83, p. 468, (1994).						
	70.	Bermudez, V.M., "Simple Efficient Technique for Exposing Surfaces to Hydrogen Atoms," J. Vac. Sci. Technol., Vol. A14, p. 2671, (1996).						
	71.	Buchan, N.I. et al., "Epitaxial Growth of GaAs with (C ₂ H ₅)2GaCl and AsH ₃ in a Hot Wall System," J. Cryst. Growth, Vol. 107, 331, (1991).						
-	72.	Chen, W.K. et al., "Metalorganic Chemical Vapor Deposition of indium Phosphide by Pulsing Precursors," Appl. Phys. Lett., Vol. 55, 987, (1989).						
·	73.	"Corrosion of Aluminum and Aluminum Alloys," Metals Handbook, Vol. 13, ASM, Metals Park, OH (1989).						
	74.	Dapkus, P.D. et al., "Atomic Layer Epitaxy for the Growth of Heterostructures," Proc. Intern. Electron. Devices Mth. IEEE, Vol. 472, (1988).						
	75.	deKeijser, M. et al., "Atomic Layer Epitaxy of Gallium Arsenide with the Use of Atomic Hydrogen," Appl. Phys. Lett, Vol. 58, p. 1187, (1991).						
	76.	Doi, A. et al., "Stepwise Molecular Growth of GaAs by Switched Laser Metalorganic Vapor Phase Epitaxy," Appl. Phys. Lett., Vol. 49, 785, (1986).						
	77.	Dosho, S. et al. "Atomic Layer Epitaxy of ZnSe-ZnTe Strained Layer Superlattices," J. Crys. Growth, Vol. 95, p. 580, (1989).						
	78.	Ducso, C. et al., "Deposition of Tin Oxid into Porous Silicon by Atomic Layer Epitaxy," J. Electrochem. Soc., Vol. 143, p. 683, (1996).						

EXAMINER	•	DATE CONSIDERED
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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE ATTY. DOCKET NO. ASMMC.9CP1DV1C1

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INFORMATION DISCLOSURE STATEMENT **BY APPLICANT**

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FILING DATE

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GROUP Unknown

(USE SEVERAL SHEETS IF NECESSARY)

INITIAL	79. Ede T Suntola and M Simpona "Atomic Layer Enitory," Channes and Hall MV (1990)
	Lus. 1. Suntola and M. Simpson, Alonio Layer Epitaxy, Graphian and Pali, NY (1990).
	Eds. T.F. Kuech, et al., "Atomic Layer Growth and Processing," Mat. Res. Soc. Proc. p. 222, (1991).
8	Ehrlich, D.J. et al., "Fast Room-Temperature Growth of SiO ₂ Films by Molecular-layer Dosing," Appl. Phys. Lett., Vol. 58, p. 2675, (1991).
8	Eres, G. et al., "The Role of Hydride Coverage in Surface-limited Thin-film Growth of Epitaxial Silicon and Germanium," J. Appl. Phys., Vol. 74, p. 7241, (1993).
8	Fan, J. F. et al., "Low-temperature Growth of Thin Films of Al ₂ O ₃ with Trimethylaluminum and Hydrogen Peroxide," Mat. Res. Soc. Symp. Proc. Vol. 222, pp. 327-332, (1991).
	34. Fan, J-F. et al., "Low Temperature Growth of Thin Films of Al ₂ O ₃ by Sequential Surface Chemical Reaction of Trimethylaluminum and H ₂ O ₂ ," Jpn. J. Appl. Phys., Vol. 30, p. L1139, (1991).
8	Faschinger, W. et al., "Observation of Different Reflected High-energy Electron Diffraction Patterns During Atomic Layer Epitaxy Growth of CdTe Epitayers," J. Cryst. Growth, Vol. 115, p. 692, (1991).
8	Fujii, K. et al., "Desorption Properties of Amine Species During Atomic Layer Epitaxy of GaAs Using Amino-As," Appl. Phys. Lett. Vol. 61, p. 2577, (1992).
8	Fujii, K. et al., "Atomic Layer Epitaxy of AlAs Using Trimethylamine-alane and AminoAs," Appl. Phys. Lett., Vol. 62, p. 1420, (1993).
8	Fujiwara, H. et al., "Low Temperature Growth of ZnS _X Se _{1-X} Alloys Fabricated by Hydrogen Radical Enhanced Chemical Vapor Deposition in an Atomic Layer Epitaxy Mode," J. Appl. Phys., Vol. 74, p. 5510, (1993).
8	Gong, J.R. et al., "Atomic Layer Epitaxy of AlGaAs," Appl. Phys. Lett., Vol. 57, p. 400, (1990).
9	Goodman, C.H.L. et al., "Atomic Layer Epitaxy," J. Appl. Physics, Vol. 60, p. R65, (1986).
٤	Gotoh, J. et al., "Low-temperature Growth of ZnSe-based Pseudomorphic Structures by Hydrogen-radical-enhanced Chemical Vapor Deposition," J. Cryst. Growth, Vol. 117, p. 85, (1992).
(Hartmann, J.M. et al., "Atomic Layer Epitaxy of CdTe and MnTe," J. Appl. Phys., Vol. 79, p. 3035, (1996).
٤	Hasunuma, E. et al., "Gas-phase-reaction-controlled Atomic-layer-epitaxy of Silicon," J. Vac. Sci. Technol., Vol. A 16, p. 679, (1998).
9	Haukka S. et al., "Growth Mechanisms of Mixed Oxides on Alumina," Appl. Surf. Sci. Vol. 112, p. 23, (1997).
9	Herman, M.A. et al., "Surface Morphology of CdTe films Grown on CdTe(111) Substrates by Atomic Layer Epitaxy," J. Cryst. Growth, Vol. 73, p. 403, (1985).
	Herman, M.A. et al., "Atomic Layer Epitaxy of Cd _{1-x} Mn _x Te grown on CdTe(111)B Substrates," <u>J. Cryst. Growth</u> , Vol. 66, p. 480, (1984).
٤	Herman, M.A., "Atomic Layer Epitaxy – 12 Years Later," Vacuum , Vol. 42, (1991).
9	P8. Higashi, G.S. and Fleming, C.G., <u>Appl. Phys. Lett.</u> , Vol. 55, No. 19, p. 1963, (1989).
5	Hiltunin, L. et al., Materials Chemistry and Physics, Vol. 28, p. 379, (1991).
1	100. Hiltunin, L. et al., Thin Solid Films, Vol. 166, p. 149, (1988).
	Hiramatsu, K. et al., "Formation of TiN Films with Low LI Concentration by Pulsed Plasma Chemical Vapor Deposition," J. Vac. Sci. Techn. A. Vol. 14, No. 3, pp. 1037-1040, (May/June 1996).
	Horikoshi, Y. et al., "Low-temperature Growth of GaAs and AlAs-GaAs Quantum-well Layers by Modified Molecular Beam Epitaxy," Jpn. J. Appl. Phys., Vol. 25, p. L868, (1986).
	Hunter, A. et al., "A Novel Atmospheric Pressure Technique for the Deposition of ZnS by Atomic Layer Epitaxy Using Dimethylzinc," J. Cryst. Growth, Vol. 91, p. 111, (1988).
	Hyvarinen, J. et al., "Mass Spectrometry Study of ZnS Atomic Layer Epitaxy Process," J. Cryst. Growth, Vol. 86, p. 695, (1988).
	105. Ihanus, J. et al., "ALE Growth of ZnS _{1-x} Se _x Thin Films by Substituting Surface Sulfer with Elemental Selenium," Appl. Surf. Sci., Vol. 112, p. 154, (1997).
1	106. Ihanus, J. et al., "AFM Studies on ZnS Thin Films Grown by Atomic Layer Epitaxy," Appl. Surf. Sci., Vol. 120, p. 43, (1997).

EXAMINER			

DATE CONSIDERED

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

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EXAMINE R INITIAL		OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)
	107.	lmai, S. et al., "A Novel Atomic Layer Method of Silicon," Jpn. J. Appl. Phys., Vol. 30, p. 3646, (1991).
	108.	Imai, S. et al., "Atomic Layer Epitaxy of Si Using Atomic H," Thin Solid Films., Vol. 225, p. 168, (1993).
	109.	Jensen, K.F. et al., "Proceedings of the Twelfth International Symposium on Chemical Vapor Deposition 1993," Proceedings Vol. 93-2, The Electrochemical Society, Pennington, NJ, (1993).
	110.	Juppo, M. et al., "Deposition of Molybdenum Thin Films by an Alternate Supply of MoCl ₅ and Zn," J. Vac. Sci. Technol., Vol. A 16, p. 2845, (1998).
	111.	Juppo, M. et al., "Deposition of Copper Films by an Alternate Supply of CuCl and Zn," J. Alternate Vac. Sci. Technol., Vol. A 15, p. 2330, (1997).
	112.	Juza, P. et al., "Experimental Test of the Transition Layer Model of Atomic Layer Epitaxy," Appl. Phys. Lett., Vol. 53, p. 1396, (1988).
	113.	Kawakyu, Y. et al., "GaAs Atomic Layer Epitaxy Using the KrF Excimer Laser," Jpn. J. Appl. Phys., Vol. 28, p. L1439, (1989).
	114.	Khan, M. Asif et al., "Atomic Layer Epitaxy of GaN Over Sapphire Using Switched Metalorganic Chemical Vapor Deposition," Appl. Phys. Lett., Vol. 60, p. 1366, (1992).
	115.	Khan, M. Asif et al., "GaN/AIN Digital Alloy Short-period Superlattices by Switched Atomic Layer Metalorganic Chemical Vapor Deposition," Appl. Phys. Lett., Vol. 63, p. 3470, (1993).
	116.	Kimura R. et al., "Atomic Layer Epitaxy of ZnSe on GaAs(1000) by Metalorganic Molecular Beam Epitaxy," J. Cryst. Growth, Vol. 116, p. 283, (1992).
	117.	Koleski, D.D. et al., "Atomic Layer Epitaxy of Si on Ge(100) Using Si ₂ Cl ₆ and Atomic Hydrogen," Appl. Phys. Lett. Vol. 64, p. 884, (1994).
	118.	Koleski, D.D. et al., "Precursors for Si Atomic Layer Epitaxy: Real Time Adsorption Studies on Si(100)," Appl. Phys. Lett., Vol. 61, p. 1802, (1992).
	119.	Koleski, D.D. et al., "Growth of Si on Si(100) via H/Cl Exchange and the Effect of Interfacial Boron," J. Appl. Phys., Vol. 72, p. 4073, (1992).
	120.	Koleski, D.D. et al., "Atomic Layer Epitaxy of Si on Ge(100): Direct Recoiling Studies of Film Morphology," J. Appl. Phys. Vol. 76, p. 1615, (1994).
	121.	Kondon, E. et al., "Interconnection Formation by Doping Chemical-Vapor-Deposition Aluminum with Copper Simultaneously: Al-Cu CVD," J. Electrochem. Soc., Vol. 141, p. 3494, (1994).
	122.	Kong, W. et al. "White Light Emitting SrS:Pr Electroluminescent Devices Fabricated via Atomic Layer Epitaxy," Appl. Phys. Lett., Vol. 66, 419, (1995).
	123.	Kuech, T.F. et al., "Selective Epitaxy in the Conventional Metalorganic Vapor Phase Epitaxy of GaAs," Appl. Phys. Ltrs., Vol. 54, p. 910, (1989).
	124.	Kukli, K. et al., "Tailoring the Dielectric Properties of HfO ₂ -Ta ₂ O ₅ Nanolaminates," Appl. Phys. Lett., Vol. 68, p. 3737, (1996).
	125.	Kukli, K. et al., "Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films from Ta(OC ₂ 2H ₅) ₅ and H ₂ O," J. Electrochem. Soc., Vol. 142, p. 1670, (1995).
	126.	Kukli, K. et al., "In Situ Study of Atomic Layer Epitaxy Growth of Tantalum Oxide Thin Films From Ta(OC ₂ H ₅) 5 and H ₂ O," Appl. Surf. Sci., Vol. 112, p. 236, (1997).
	127.	Kukli, K. et al., "Atomic Layer Epitaxy Growth of Aluminum Oxide Thin Films from a Novel Al(CH ₃) ₂ Cl Precursor and H ₂ O," J. Vac. Sci. Technol., Vol. A 15, p. 2214, (1997).
	128.	Kumagai, H. et al., "Comparative Study of Al ₂ O ₃ Optical Crystalline Thin Films Grown by Vapor Combinations of Al(CH ₃) ₃ /N ₂ O and Al(CH ₃) ₃ /H ₂ O ₂ ," Jpn. J. Appl. Phys., Vol. 32, p. 6137, (1993).
	129.	Kumagai, H. et al., <u>Jpn. J. Appl. Phys.,</u> Vol. 33, p. 7086, (1994).
	130.	Kurtz, E. et al., "Self-organized CdSe/ZnSe Quantum Dots on a ZnSe (111)A Surface," J. Cryst., Vol. 184/185, Growth 242, (1998).
	131.	Lakomaa, E-L. et al., "Surface Reactions in Al ₂ O ₃ Growth from Trimethylaluminum and Water by Atomic Layer Epitaxy," Appl. Surf. Sci. Vol. 107, p. 107, (1996).
	132.	Lee, C.D. et al., "Growth of ZnSe on (100) GaAs by Atomic Layer Epitaxy," J. Cryst. Growth, Vol. 117, p. 148, (1992).
	133.	Lee, J.S. et al., "Self Limiting Growth on Nominally Oriented (111)A GaAs Substrates in Atomic Layer Epitaxy," Appl. Surf. Sci., Vol. 103, p. 275, (1996).
	134.	Leskela, M. et al., <u>Chemtronics</u> , Vol. 3, p. 113, (1988).

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DATE CONSIDERED

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

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FILING DATE GROUP Unknown

EXAMINE R INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)		
INITIAL	135.	Leskela, M. et al., J. Less Common Metals, Vol. 153, p. 219, (1989).	
	136.	Leskela, M. et al., Mat. Res. Soc. Symp. Proc., Vol. 222, p. 315, (1991).	
	137.	Leskela, M., "Atomic Layer Epitaxy in the Growth of Polycrystalline and Amorphous Films," Acta Polytechn. Scand., Ser. Chem. Techn., Vol. 195, 67, (1990).	
	138.	Leskela, et al., "Atomic Layer Epitaxy in Deposition of Various Oxide and Nitride Thin Films," <u>Journal De Physique IV</u> , Colloque C5, Supplement au Journal de Physique II, Vol. 5, pp. C5-937 - C5-951, (June 1995).	
	139.	Levy, R.A. et al., "Low Pressure Chemical Vapor Deposition of Tungsten and Aluminum for VLSI Applications, J. Electrochem. Soc., Vol. 134, 37C, (1987).	
	140.	Lin, D-S. et al., "Adsorption and Thermal Reactions of Disilane and the Growth of Si Films on Ge(100)-(2x1)," Phys. Rev. Vol. B 47, p. 6543, (1993).	
	141.	Maa, B.Y. et al., "Surface Reactions in the Atomic Layer Epitaxy of GaAs Using Arsine," Appl. Phys. Lett., Vol. 58, p. 1762, (1991).	
	142.	Mahajan, A. et al., "Surface Chemistry of Diethylsilane and Diethylgermane on Si(100): An Atomic Layer Epitaxy Approach," J. Vac. Sci. Technol. Vol. 12A, p. 2265, (1994).	
	143.	Martenssoon, P. et al., "Atomic Layer Epitaxy of Copper," J. Electrochem. Soc., Vol. 145, p. 2926, (1998).	
	144.	Matsunami, H. et al., "Hetero-interface Control and Atomic Layer Epitaxy of SiC," Appl. Surf. Sci., Vol. 112, p. 171, (1997).	
	145.	McDermott, B.T. et al., "Atomic Layer Epitaxy of the Ga-As-In-As Superalloy," Appl. Phys. Lett., Vol. 51, p. 1830, (1987).	
	146.	McMurran, J. et al., "Development of a Low-Temperature GaN Chemical Vapor Deposition Process Based on a Single Molecular Source H ₂ GaN ₃ ," Appl. Phys. Lett., Vol. 74, p. 883, (1999).	
	147.	Meguro, T. et al., "Effects of Active Hydrogen on Atomic Layer Epitaxy of GaAs," Appl. Surf. Sci., Vol. 112, p. 118, (1997).	
	148.	Morishita, S. et al., "Atomic-layer Chemical-vapor-deposition of Silicon Nitride," Appl. Surf. Sci., Vol. 112, p. 198, (1997).	
	149.	Nagel et al., "Modified Chemical Vapor Deposition," Optical Fiber Communications, Vol 1, Fiber Fabrication, Ed. Tingye Li, Academic Press Inc., Chapter 1, pp. 1-64, (1985).	
	150.	Nakano, M. et al., "Digital Chemical Vapor Deposition of SiO ₂ ," Appl. Phys. Lett., Vol. 57, No. 11, pp. 1096-1098, (September 10, 1990).	
	151.	Nelson, J.G., "Summary Abstract: Epitaxial Growth of ZnS and ZnSe on the Low Index Faces of GaAs Using Atomic Layer Epitaxy," J. Vac. Sci. Technol. Vol. A5, p. 2140, (1987).	
	152.	Niinisto, L. et al., "Synthesis of Oxide Thin Films and Overlayers by Atomic Layer Epitaxy for Advanced Applications," Mater. Sci. Engr., Vol. B41, p. 23, (1996).	
	153.	Nishi, K. et al., "In situ Optical Characterization of GaAs Surfaces Under Alternating Supply of GaCl and AsH3," Appl. Phys. Lett., Vol. 61, p. 31, (1992).	
	154.	Nishizawa, J-I. et al., "Gallium Arsendie Thin Films by Low-temperature Photochemical Processes," J. Vac. Sci. Technol. Vol. A5, p. 1572, (1987).	
	155.	Nishizawa, J. et al., "Doping in Molecular Layer Epitaxy," Soc., Vol. 136, p. 478, (1989).	
	156.	Nishizawa, J. et al., "Molecular Layer Epitaxy of Silicon," <u>J. Cryst. Growth</u> , Vol. 99, 502, (1990).	
	157.	Nishizawa, J. et al., "Silicon Molecular Layer Epitaxy," J. Electrochem. Soc., Vol. 137, p. 1898, (1990).	
	158.	Nishizawa, J., "Molecular Layer Epitaxy and Its Fundaments," <u>J. Cryst. Growth,</u> Vol. 115, p. 12, (1991).	
	159.	Nishizawa, J. et al., <u>J. Electrochem. Soc</u> ., Vol. 132, p. 1197, (1985).	
	160.	Nishizawa, J. et al., <u>J. Electrochem. Soc.</u> , Vol. 134, p. 945, (1987).	
	161.	Nishizawa, J. et al., <u>J. Vac. Sci. Technol.</u> , Vol. A 4(3), p. 706 (1986).	
	162.	Ohno, H. et al., "Atomic Layer Epitaxy of GaAs Using Triethylgallium and Arsine," Appl. Phys. Lett., Vol. 54, p. 2000, (1989).	

EXAMINER	
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DATE CONSIDERED

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

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FILING DATE Concurrently herewith GROUP Unknown

EXAMINE R INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)		
	163.	Ohtsuka, N. et al., "A New GaAs on Si Structure using AlAs Buffer Layers Grown by Atomic Layer Epitaxy," J. Cryst. Growth, Vol. 99, p.346, (1990).	
	164.	Ohtsuka, N. et al., "Extremely High Be Doping of InGaAs by Low Temperature Atomic Layer Epitaxy," J. Cryst. Growth, Vol. 115, p. 460, (1991).	
	165.	Oikkonen, M. et al., "X-ray Diffraction Study of Microstructure in ZnS Thin Films Grown from Zinc Acetate by Atomic Layer Epitaxy," Thin solid Films, Vol. 124, p. 317, (1985).	
	166.	Oikkonen, M., "Ellipsometric Studies of Zinc Sulfide Thin Films Grown by Atomic Layer Epitaxy," J. Appl. Phys., Vol. 62, p.1385, (1987).	
	167.	Ott, A.W. et al., "Surface Chemistry of In ₂ O ₃ Deposition Using In(CH ₃) ₃ and H ₂ O in a Binary Reaction Sequence," Appl. Surf. Sci. Vol. 112, p. 205, (1997).	
	168.	Oya, G. et al., "Growth of α-Al ₂ O ₃ Films by Molecular Layer Epitaxy," <u>Appl. Phys. Lett.</u> , Vol. 51, p. 1143, (1987).	
	169.	Ozeki, M. et al., "New Approach to the Atomic Layer Epitaxy of GaAs Using a Fast Gas Stream," Appl. Phys. Lett., Vol. 53, p. 1509, (1988).	
·	170.	Ozeki, M. et al., "Adsorption mechanisms of Tertiarybutylarsine on Ga- and As- rich GaAs(001) Surfaces," Appl. Surf. Sci., Vol. 112, p 110, (1997).	
	171.	Pessa, M. et al., "Atomic Layer Epitaxy of CdTe on the Polar (111)A and (111)B surfaces of CdTe Substrates," J. Cryst. Growth, Vol. 67, p. 255, (1984).	
	172.	Pessa, M. et al., "Atomic Layer Epitaxy and Characterization of CdTe Films Grown on CdTe (110) Substrates," J. Appl. Physics, Vol. 54, p. 6047, (1983).	
	173.	Pessa, M. et al., "Characterization of Surface Exchange Reactions Used to Grow Compound Films," Appl. Phys. Lett., Vol. 38, p. 131, (1981).	
	174.	Pessa, M. et al., "Growth of Cd _{1-x} Mn _x Te Films with 0 <x<0.9 (1984).<="" 45,="" 646,="" appl.="" atomic="" by="" epitaxy,"="" layer="" lett.,="" p.="" phys.="" td="" vol.=""></x<0.9>	
	175.	Pessa, M. et al., "Epitaxial Growth and Electronic Structure of CdTe Films," J. Vac. Sci. Technol. Vol. A2, p. 418, (1984).	
	176.	Piner, E.L. et al., "Effect of Hydrogen on the Indium Incorporation in InGaN Epitaxial Films," Appl. Phys. Lett., Vol. 70, p. 461, (1997).	
	177.	"Proceedings of the Second International Atomic Layer Epitaxy Symposium," Thin Solid Films, Vol. 225, No. 1-2, (1993).	
	178.	"Proceedings of the Third International Atomic Layer Epitaxy Symposium," Applied Surface Science, Vol. 82/83, (1994).	
	179.	Reid, K.G. et al., "Role of Trimethylgallium Exposure Time in Carbon Doping and High Temperature Atomic Layer Epitaxy of GaAs," Appl. Phys. Lett. Vol. 59, p. 2397, (1991).	
	180.	Riihela, D. et al., "Introducing Atomic Layer Epitaxy for the Deposition of Optical Thin Films," Thin Solid Films, Vol. 289, p. 250, (1996).	
	181.	Ritala, M. et al., "Zirconium Dioxide Thin Films Deposited by ALE Using Zirconium Tetrachloride as Precursor," Appl. Surf. Sci. Vol. 75, p. 333, (1994).	
	182.	Ritala, M. et al., "Atomic Layer Epitaxy Growth of TiN Thin Films," J. Electrochem. Soc., Vol. 142, p. 2731, (1995).	
	183.	Ritala, M. "Atomic Layer Epitaxy Growth of TiN Thin Films from Til ₄ and NH ₃ ," J. Electrochem. Soc., Vol. 145, p. 2914, (1998).	
	184.	Ritala, M. et al., <u>Thin Solid Films</u> , Vol. 250, p. 72, (1994).	
	185.	Ritala, M. et al., "Surface Roughness Reduction in Atomic Layer Epitaxy Growth of Titanium Dioxide Thin Films," Thin Solid Films, Vol. 249, p. 155, (1994).	
	186.	Ritala, M. et al., "Enhanced Growth Rate in Atomic Layer Epitaxy of Indium Oxide and Indium-Tin Oxide Thin Films," Electrochem and Solid Sate Ltrs., Vol. 1, p. 156, (1998).	
	187.	Ritala, M. et al., "Effects of Intermediate Zinc Pulses on Properties of TiN and NbN Films Deposited by Atomic Layer Epitaxy," Appl. Surf. Sci., Vol. 120, p. 199, (1997).	
	188.	Ritala, M., et al., <u>Chem. Mater</u> , Vol. 5, p. 1174, (1993).	
	189.	Ritala, M., et al., <u>Thin Solid Films</u> , Vol. 225, p. 288, (1993).	
	190.	Ritala, M., et al., <u>Thin Solid Films</u> , Vol. 228, p. 32, (1993).	
	191.	Sakuma, Y. et al., "Atomic Layer Epitaxy of GaP and Elucidation for Self-limiting Mechanism," Appl. Phys. Lett., Vol. 56, p. 827, (1990).	

EXAMINER

DATE CONSIDERED

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE ATTY. DOCKET NO. ASMMC.9CP1DV1C1 APPLICATION NO. To be assigned

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FILING DATE Concurrently herewith

EXAMINE R INITIAL	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)		
	192.	Sakuma, Y. et al., "Comparative Study of Self-limiting Growth of GaAs using Different Ga-alkyl Compounds: (CH ₃) ₃ Ga, C ₂ H ₅ (CH ₃) ₂ Ga, and (C ₂ H ₅) ₃ Ga," J. Appl. Phys., Vol. 68, p. 5660, (1990).	
	193.	Seim, H. et al., "Growth of LaCoO ₃ Thin Films from βl-diketonate Precursors," Appl. Surf. Sci., Vol. 112, p. 243, (1997).	
	194.	Seong, N-J et al., "Ferroelectric SrBi ₂ Ta ₂ O ₉ Thin Film Deposition at 550°C by Plasma-enhanced Metalorganic CVD onto a Metalorganic CVD Platinum Bottom Electrode," J. Vac. Sci. Technol. A17, p. 83, (1999).	
	195.	Sherman, A., "In situ Removal of Native oxide from Silicon Wafers," J. Vac. Sci. Technol., Vol. B8(4), p. 656, (Jul/Aug 1990).	
	196.	Sherman, A., "Chemical Vapor Deposition for Microelectronics," Noyes Publications, New Jersey, (1987).	
	197.	Skarp, J.I. et al., "ALE-reactor for Large Area," Appl. Surf. Sci., Vol. 112, p. 251 Depositions, (1997).	
	198.	Sneh, O. et al., <u>Surface Science</u> , Vol. 334, p. 135, (1995).	
	199.	Soininen, P. et al., "Blue Electroluminescence of SrS:Ce, SiCl ₄ Thin Films Grown by Atomic Layer Epitaxy," Int. Display Res. Conf. Proceedings, Aug. 31 – Sept. 3, 1993, p. 511.	
	200.	Suda, Y. et al., "Thermal and Photostimulated Reactions on Si ₂ H ₆ -adsorbed Si(100)2x1 Surfaces: Mechanisms of Si Film Growth by Atomic Layer Epitaxy," J. Vac. Sci. Technol. Vol. B7, p. 1171, (1989).	
	201.	Sugahara, S. et al., "Modeling of Silicon Atomic-layer-epitaxy," Appl. Surf. Sci., Vol. 107, p. 161, (1996).	
	202.	Sugahara, S. et al., <u>Appl. Surf. Sci</u> . Vol. 82/83, p.380, (1994).	
	203.	Sugahara, S. et al., "Atomic Hydrogen-assisted ALE of Germanium," Appl. Surf. Sci., Vol. 90, p. 349, (1995).	
	204.	Sugahara, S. et al., "Modeling of Germanium Atomic-layer-epitaxy," Appl. Surf. Sci., Vol. 112, p. 176, (1997).	
	205.	Suntola, T., "Atomic Layer Epitaxy," Thin Solid Films, Vol. 216, p. 84, (1992).	
	206.	Suntola, T., "Surface Chemistry of Materials Deposition at Atomic Layer Level," Appl. Surf. Sci. Vol. 100/101, p. 391, (1996).	
	207.	Szczerbakow, A. et al., "Monocrystalline ZnS-sphalerite Films Grown by Atomic Layer Epitaxy in a Gas Flow System," J. Cryst. Growth, Vol. 183, p. 708, (1998).	
	208.	Takahashi Y. et al., "Self-limiting Adsorption of SiCl ₂ H ₂ and its Application to the Layer-by-layer Photochemical Process," <u>Jpn. J. Appl. Phys.</u> , Vol. 30, p. L-209, (1991).	
	209.	Taki, T. et al., "Atomic Layer Epitaxy of GaAs Using GaBr and Gal Sources," Appl. Surf. Sci., Vol. 112, p. 127, (1997).	
	210.	Tammenmaa, M. et al., "Zinc Chalcogenide Thin Films Grown by Atomic Layer Epitaxy Technique Using Zinc Acetate as Source Material," Thin Solid Films, Vol. 124, p. 125, (1985).	
	211.	Tammenmaa, M., et al., <u>J. Crystal Growth</u> , Vol. 84, p. 151, (1987).	
	212.	Tanninen, V.P. et al., "Comparative Study of the Crystal Phase, Crystallite Size and Microstrain in Electroluminescent ZnS:Mn Films Grown by ALE and Electron Beam Evaporation," Thin Solid Films, Vol. 109, p. 283, (1983).	
	213.	Tanninen, V.P. et al., "Structural Characterization of Thin ZnS Films by X-Ray Diffraction," Thin Solid Films, Vol. 90, p. 339, (1982).	
	214.	Tasch, A. et al., "Atomic Layer Epitaxy of Germanium," J. Vac. Sci. Technol. Vol. 12A, p. 2265, (1994).	
	215.	Thompson, P.E. et al., "Use of Atomic Layer Epitaxy Buffer for the Growth of InSb on GaAs by Molecular Beam Epitaxy," J. Appl. Phys., Vol. 69, p. 7166, (1991).	
	216.	Tischler, M.A. et al., "Self-limiting Mechanism in the Atomic Layer Epitaxy of GaAs," Appl. Phys. Lett., Vol. 48, p. 1681, (1986).	
	217.	Tischler, M.A. et al., "Growth and Characterization of Compound Semiconductors by Atomic Layer Epitaxy," J. Cryst. Growth, Vol. 77, p. 89, (1986).	
·	218.	Tsurumi, T. et al., "Fabrication of Barium Titanate/Strontium Titanate Artificial Superlattice by Atomic Layer Epitaxy," Jpn. J. Appl. Phys. Vol. 33, p. 5192, (1994).	

EXAMINER	DATE CONSIDERED

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

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EXAMINE R	OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)		
INITIAL	240		
-	219.	Usui, A. et al., "Atomic Layer Epitaxy of III-V Compounds by Hydride VPE," Int. Symp. GaAs and related compounds, Las Vegas, NV, 1986, Int. Phys. conf. Ser. No. 83: Chapter 3, p. 129.	
	220.	Usui, A. et al., "GaAs Atomic Layer Epitaxy by Hydride VPE," Jpan. J. Appl. Phys., Vol. 25, P. L212, (1986).	
	221.	Utriainen, M. et al., "Controlled Electrical Conductivity in SnO ₂ Thin Films by Oxygen or Hydorcarbon Assisted Atomic Layer Epitaxy," <u>Electrochem. Soc.</u> , Vol. 146, p. 189, (1999).	
	222.	Watanabe, A. et al., "The Mechanism of Atomic Layer Epitaxy of GaAs Using Trimethylgallium and Arsine," Vacuum, Vol. 41, p. 965, (1990).	
	223.	Wisotski, E. et al., "Room-temperature Growth of ZrO ₂ Thin Films using a novel hyperthermal oxygen-atom source," <u>J. Vac. Sci. Technol.</u> A17, p. 14, (1999).	
	224.	Yamada, A. et al., "Atomic Layer Deposition of ZnO Transparent Conducting Oxides," Appl. Surf. Sci., Vol. 112, p. 216, (1997).	
	225.	Yamaga, S. et al., "Atomic Layer Epitaxy of ZnS by a New Gas Supplying System in Low-pressure Metalorganic Vapor Phase Epitaxy," J. Cryst. Growth, Vol. 117, p. 152, (1992).	
	226.	Yamamoto, S. et al. "Atomic Layer-by-layer Epitaxy of Oxide Superconductors by MOCVD," Appl. Surf. Sci., Vol. 112, p. 30, (1997).	
	227.	Yao, T. et al., "Growth Process in Atomic Layer Epitaxy of Zn Chalcogenide Single Crystalline Films on (100) GaAs," Appl. Phys. Lett., Vol. 48, p. 160, (1986).	
	228.	Yao, T. et al., "Photoluminescence Properties of ZnSe Single Crystalline Films Grown by Atomic Layer Epitaxy," Appl. Phys. Lett., Vol. 48, p. 1615, (1986).	
	229.	Yarmoff, Y.A. et al., "Atomic Layer Epitaxy of Silicon by Dichlorosilane Studied with Core Level Spectroscopy," J. Vac. Sci. Technol. A10, p. 2303, (1992).	
	230.	Yokoyama S. et al., "Atomic Layer Controlled Deposition of Silicon Nitride and an in situ Growth Observation by Infrared Reflection Absorption Spectroscopy," Appl. Surf. Sci., Vol. 112, p.75, (1997)	
	231.	Yokoyama, H. et al., "Atomic Layer Epitaxy of GaAs Using Nitrogen Carrier Gas," Appl. Phys. Lett. Vol. 59, p. 2148, (1991).	
	232.	Yu, M.L. et al., "Reaction of Trimethylgallium in the Atomic Layer Epitaxy of GaAs(100)," Appl. Phys. Lett., Vol. 55, p. 1011, (1989).	
-	233.	Yun, S.J. et al., "Dependence of Atomic Layer Deposited Al ₂ O ₃ Films Characteristics on Growth Temperature and Al Precursors of Al(CH ₃) ₃ and AlCl ₃ ," J. Vac. Sci. Technol., A 15, p. 2993, (1997).	
-	234.	Zhu, Z. et al., "Nitrogen Doping During Atomic Layer Epitaxial Growth of ZnSe," Appl. Phys. Lett., Vol. 67, p. 3927, (1995).	
	235.	Claim Construction of United States Patents Nos. 6,015,590, 5,916,365 and 5,294,568; filed August 15, 2002	
	236.	Opening Claim Construction Brief of the ASM Parties Regarding the '365 Patent, Case No. C 01 2190 EDL, filed May 3, 2002.	
	237.	Opening Claim Construction Brief of ASM Regarding the '590 Patent, Case No. C 01 2190 EDL, filed May 3, 2002.	
	238.	Genus' Claim Construction Brief Regarding U.S. Patent No. 6,015,590, Case No. C 01-02190 EDL, filed May 17, 2002.	
	239.	Genus' Claim Construction Brief Regarding U.S. Patent No. 5,916,365, Case No. C 01-02190 EDL, filed on May 17, 2002.	
	240.	ASM's Claim Construction Reply Brief Regarding the '365 Patent, Case No. C 01 2190 EDL, filed on May 24, 2002.	
n.	241.	Reply Claim Construction Brief of ASM Regarding the '590 Patent, Case No. C 01 2190 EDL, filed May 24, 2002.	
	242.	Mahajan, A. et al. "Si atomic layer epitaxy based on Si ₂ H ₆ and remote He plasma bombardment," Thin Solid Films, Vol. 225, pp. 177-182 (1993).	
	243.	Sakaue, H. et al., "Digital Chemical Vapor Deposition of SiO2 Using a Repetitive Reaction of triethylsilane/Hydrogen and Oxidation," <u>Japanese Journal of Applied Physics</u> , Vol. 30, No. 1B, pp. L124-L127 (1990).	

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DATE CONSIDERED